National Institute of Environmental Health Sciences

High temperature effects on out-patient visits and hospital admissions in Chiang Mai, Thailand

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Abstract:

Objectives: This study investigated the short-term effects of temperature on out-patient visits and hospital admissions in Chiang Mai, Thailand. While mortality outcomes in the literature have been reported, there is less evidence of morbidity effects with very few studies conducted in developing countries with subtropical or tropical climate. Methods: Time-series regression analysis was employed using generalized negative binomial regression to model the short-term relationships between temperature and morbidity after controlling for seasonal patterns and other potential confounders. Lag effects up to 13 days and effect modification by age (0-14 years, 15-64 years, ≥ 65 years) were examined. Results: Temperature effects with wide confidence intervals were found, with an increase in diabetic visits of 26.3% (95% CI: 7.1%-49.0%), and circulatory visits of 19.2% (95% CI: 7.0%-32.8%) per 1. °C increase in temperature above an identified threshold of 29. °C. Additionally, there was a rise of both visits (3.7% increase, 95% CI: 1.5%-5.9%) and admissions (5.8% increase, 95% CI: 2.3%-9.3%) due to intestinal infectious disease in association with each 1. °C increase across the whole temperature range. The effects of temperature were stronger in the elderly though not statistically significant. Conclusions: Daily morbidity in Chiang Mai was positively associated with temperature with a lag effect of up to 2 weeks, which was longer than lag effects previously reported. Public health preparedness and interventions should be considered to minimise possible increased hospital visits and admissions during hot weather. © 2011 Elsevier B.V.

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Resource Description

Exposure : ☑

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Precipitation, Temperature

Air Pollution: Ozone, Particulate Matter, Other Air Pollution

Air Pollution (other): SO2

Temperature: Fluctuations

Geographic Feature: ☑

resource focuses on specific type of geography

Tropical

Geographic Location: ☑

resource focuses on specific location

Non-United States

Non-United States: Asia

Asian Region/Country: Other Asian Country

Other Asian Country: thailand

Health Impact: ☑

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Diabetes/Obesity, Infectious Disease, Morbidity/Mortality, Respiratory Effect, Other Health Impact

Cardiovascular Effect: Other Cardiovascular Effect

Cardiovascular Disease (other): circulatory disease morbidity

Respiratory Effect: Other Respiratory Effect

Respiratory Condition (other) : respiratory disease morbidity

Other Health Impact: intestinal infectious disease

Population of Concern: A focus of content

Population of Concern: ☑

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Resource Type: ☑

format or standard characteristic of resource

Research Article

Timescale: ☑

time period studied

Time Scale Unspecified